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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/833,163

04/10/2001

Edwin Dair

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09/22/2004

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,163

Applicant(s)

DAIR ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 32-61 is/are pending in the application.
- 4a) Of the above claim(s) 11-13 and 50-61 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-49 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/17/04 & 5/20/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Species V, Subspecies (a) in the reply filed on 6/14/04 is acknowledged. The applicant has indicated that he believes claims 1-5, 7-22, 32-36, and 38-49 are readable thereon. However, claims 11-13 and 42-44 are not readable on the elected invention and species since these claims recite multiple optical blocks instead of the single optical block shown in elected species Figure 5A.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ground plane of claim 10, the third opening of claim 14, the lenses of claims 15 and 16, and the housing encasing the first second and third printed circuit boards must be shown *as part of the elected species* or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement

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Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-X are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizue (U.S. Patent No. 6,239,427).

Regarding claim 1, Edwards teaches a fiber optic module (Figure 21) for coupling photons between optoelectronic devices (e.g. “Tx” and “Rx” in Figure 21) and optical fibers, the fiber optic module comprising: a base (reference numeral 51 in Figure 21); a first printed circuit board (reference numeral 2 in Figure 1; reference numeral 40A in Figure 21) arranged parallel to a first optical axis of a first optoelectronic device (reference numeral 14 in Figure 1; reference numeral 46 in Figure 21), the first optoelectronic device having terminals coupled to the first printed circuit board (reference numeral 38 in Figure 21); a second printed circuit board (reference numeral 2 in Figure 1; reference numeral 10A in Figure 21) arranged parallel to a second optical axis of a second optoelectronic device (reference numeral 14 in Figure 1; reference numeral 16 in Figure 21), the second optoelectronic device having terminals coupled to

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the second printed circuit board (reference numeral 8 in Figure 21). Mizue differs from the claimed invention in that Mizue fails to specifically teach a third printed circuit board (PCB) arranged parallel to a third optical axis of a third optoelectronic device, the third optoelectronic device having terminals coupled to the third printed circuit board, and wherein the third printed circuit board and the third optoelectronic device to provide redundancy for the fiber optic module. However, one skilled in the art would clearly have recognized that it would have been beneficial to include a third printed circuit board including a third optoelectronic device as claimed in order to avoid a catastrophic system failure due to the failure of a single printed circuit board or optoelectronic device. One skilled in the art would have been motivated to include such redundancy of components in order to avoid a situation where the failure of a single element within a device requires complete replacement of the device. The redundant device would clearly provide the benefit of seamless continuation of system operations without the need for a service interruption for maintenance. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate either of the first or second printed circuit boards and optoelectronic device of Mizue, since it has been held the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claim 2, Mizue teaches a housing (reference numeral 53 in Figure 21) coupled to the base.

Regarding claim 3, Mizue teaches that the housing is a shielded housing encasing the printed circuit boards to reduce EMI (column 2 lines 23-31).

Regarding claim 4, Mizue teaches that the base has a first, second, and third openings (reference numeral 63, 69 in Figure 21) with the plurality of pins of the printed circuit boards (reference numeral 10b, 40b in Figure 21) extending through the opening in the base to couple to the system (Figure 25).

Regarding claim 5, Mizue teaches that the openings in the base are a plurality of pin holes in the base (inherent in that pins are accepted by the holes in the base, reference numeral 63, 69 in Figure 21).

Regarding claim 7, Mizue teaches a plurality of electronic components (reference numeral 36 in Figure 5) coupled between the optoelectronic devices (reference numeral 44 in Figure 5) and the plurality of pins of the printed circuit board (reference numeral 40 in Figure 5), the electrical components for controlling the optoelectronic devices.

Regarding claims 8-10, Mizue teaches a grounding plane to reduce electromagnetic fields generated by the electrical components (reference numeral 18 in Figure 2).

Regarding claim 14, Mizue teaches an optical block (reference numeral 99 in Figure 8) coupled to the optoelectronic devices (reference numeral Tx, Rx in Figure 8), openings to receive the optoelectronic devices (reference numeral 80, 82 in Figure 8), and lenses (reference numeral 46c in Figure 7) to couple photons between the optoelectronic devices and their respective optical fibers.

Regarding claims 15 and 16, Mizue teaches that the lenses (reference numeral 46c in Figure 7) are for either launching light from or focusing light to the optoelectronic devices.

Regarding claim 17, Mizue teaches a nose (reference numeral 54, 80a, 82a in Figure 21) to receive an optical fiber connector (e.g. “optical connector” in Figure 21) and to hold an optical fiber substantially fixed and aligned with an optical opening of the optical block.

Regarding claim 18, Mizue teaches nose shield (reference numeral 53 in Figure 21) surrounding the nose to reduce electromagnetic interference.

Regarding claims 19 and 21, Mizue teaches both transmitters and receivers but differs from the claimed invention in that Mizue fails to specifically teach the claimed configurations of the transmitters and receivers. However, one skilled in the art would clearly have recognized that it would have been possible to assemble the optical transceiver module of Mizue in any configuration including those claimed. One skilled in the art would have been motivated to assemble the optical transceiver module of Mizue in the configurations claimed in order to meet the particular needs of the system, e.g. mainly a transmission module wherein the constant use of the transmitter shortens the lifespan of the transmitter component and therefore requires a back-up transmitter (claim 19), or a mainly reception module wherein the constant use of the receiver shortens the lifespan of the receiver component and therefore requires a back-up receiver (claim 21).

Regarding claims 20 and 22, Mizue teaches the emitters are vertical cavity surface emitting lasers (VCSELS) (column 5 lines 28-35).

Allowable Subject Matter

5. Claims 32-49 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach or fully suggest a fiber optic module for coupling photons between

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optoelectronic devices and optical fibers, the fiber optic module comprising: a base; a first horizontal printed circuit board (PCB) arranged parallel to a first optical axis of a first optoelectronic device, the first optoelectronic device having terminals coupled to the first horizontal printed circuit board, the first horizontal printed circuit board arranged parallel to the base; a second vertical printed circuit board (PCB) arranged parallel to a second optical axis of a second optoelectronic device, the second optoelectronic device having terminals coupled to the second vertical printed circuit board, the second vertical printed circuit board arranged perpendicular to the base; a third horizontal printed circuit board (PCB) arranged parallel to a third optical axis of a third optoelectronic device, the third optoelectronic device having terminals coupled to the third horizontal printed circuit board, the third horizontal printed circuit board arranged parallel to the base; and wherein the third horizontal printed circuit board and the third optoelectronic device to provide redundancy for the fiber optic module.

The prior art fails to specifically teach two horizontal circuit boards and a vertical circuit board wherein the optoelectronic devices are parallel to the optical axis. Although the prior art teaches that a vertical printed circuit board orientation is well known in the art, the prior art fails to teach or fully suggest the combination of two horizontal printed circuit boards and a single vertical printed circuit board.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kneier and Scharf teach relevant art.

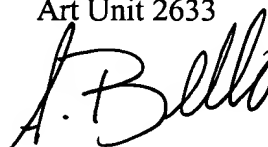
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Agustin Bello
Examiner
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A handwritten signature in black ink, appearing to read 'A. Bello', written over the printed name and title.

AB